California Environmental Protection Agency
Air Resources Board

ARB Portable Fuel Container (PFC) Regulation Update

May 12, 2015 - Sacramento

Presentation Outline

Section 1: Background

Section 2: Compliance with Current E-0 Requirement

Section 3: Proposed E-10 Requirements and other Revisions

Section 4: Possible Future Actions

Why Emission Controls are Needed

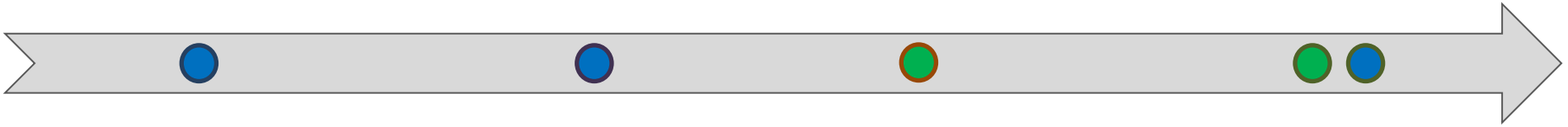
- Approximately 10 million PFCs in use in California
- A significant source of reactive organic gases (ROG)
- Controlling emissions from PFCs:
  - Reduces ozone precursors
  - Reduces exposure to benzene and other air toxics
- Current standards are intended to reduce uncontrolled PFC emissions by 70 percent

PFC Regulation Background

September 1999:
ARB regulation adopted including E-0 test fuel requirement

September 2005:
ARB regulation amended to include non-compliant containers and new test procedures

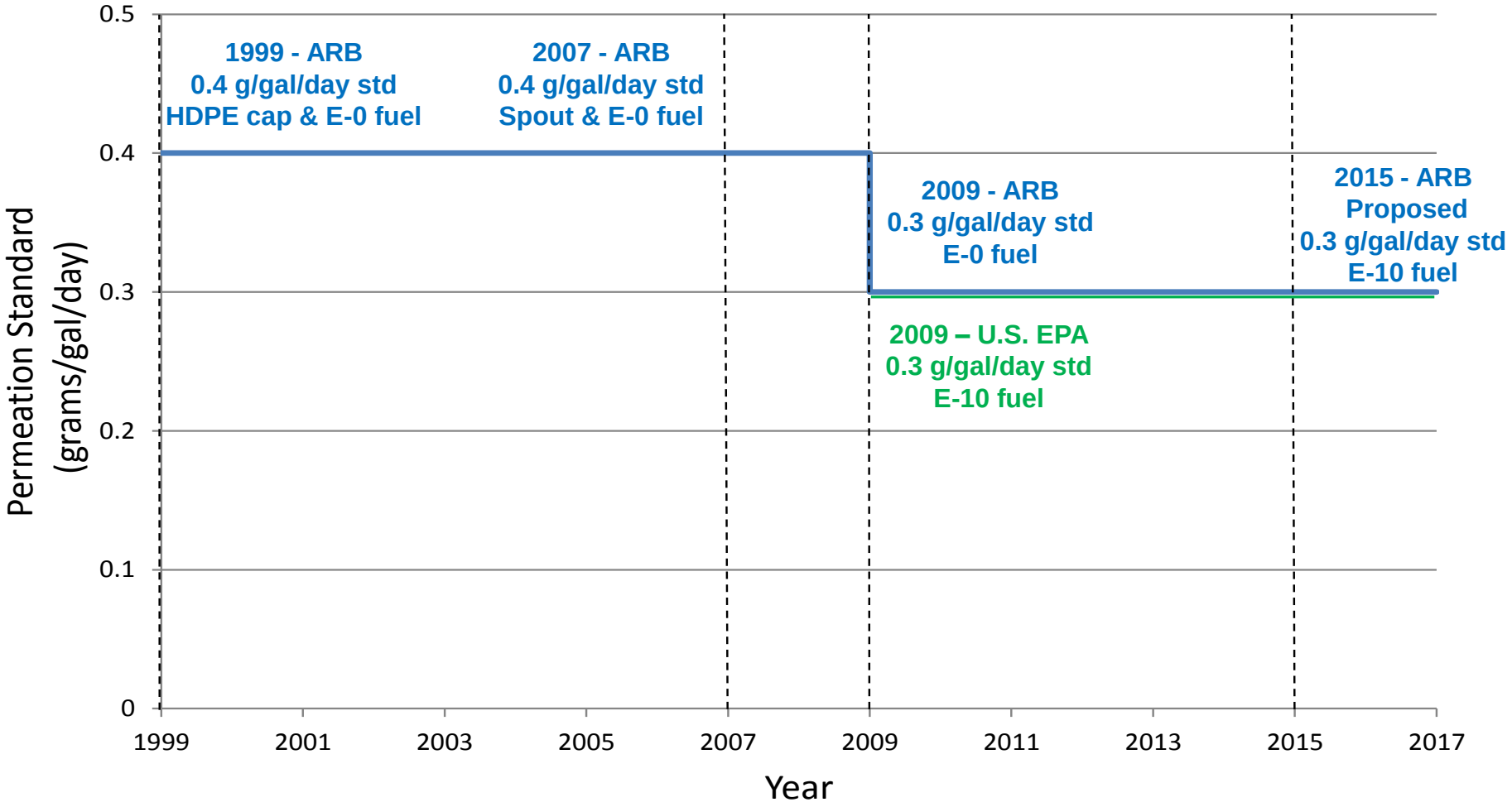
December 2015:
ARB Board Hearing to consider E-10 fuel requirement, and revisions to clarify procedures and harmonize with U.S. EPA



January 2009:
U.S. EPA regulation adopted including E-10 test fuel requirement

February 2015:
U.S. EPA adopted minor amendments to regulation

PFC Diurnal Emissions Standards



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ARB Testing Program

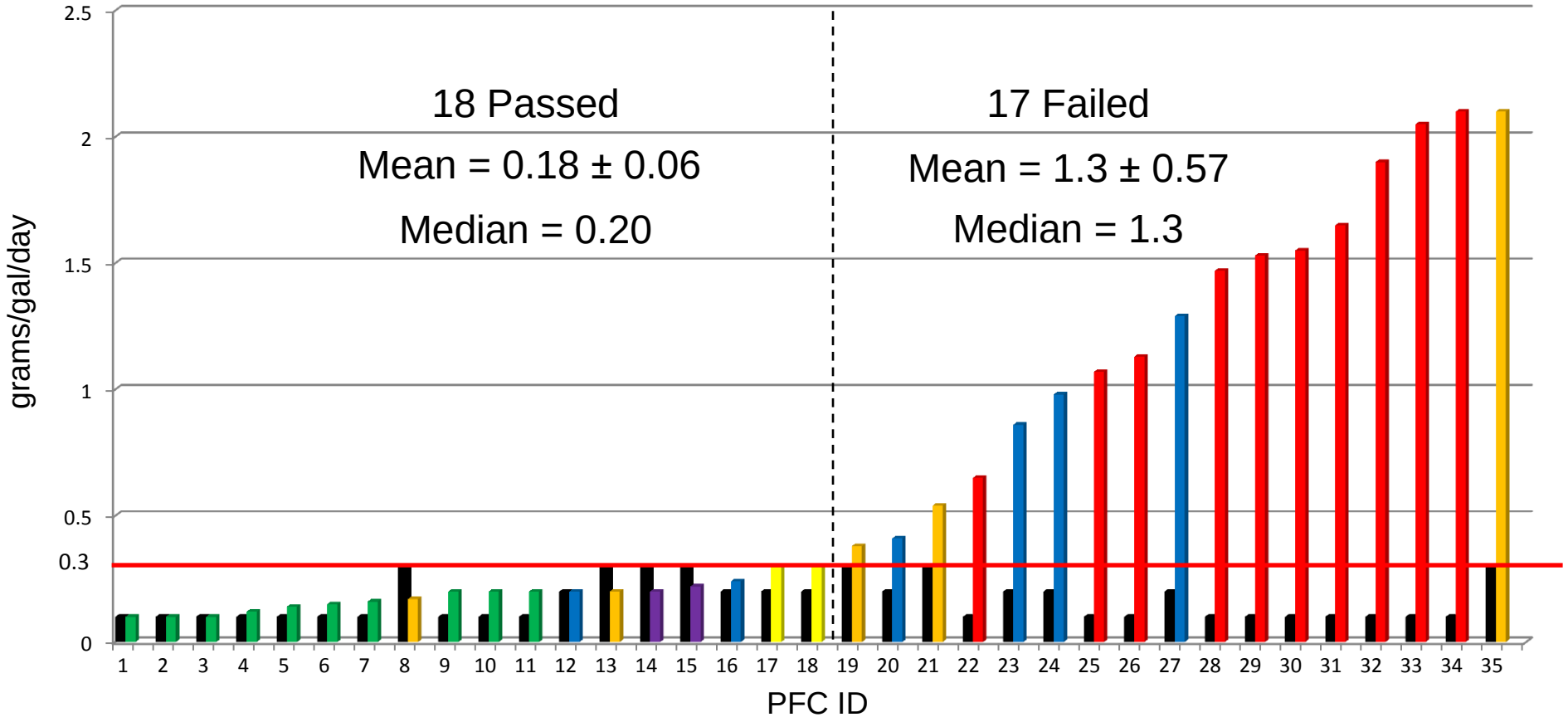
- Perform compliance tests & certification and validation studies
- In-house SHED for diurnal testing
- Four PFC compliance tests from 2013-2014 on E-0 fuel
  - Roughly 40 percent of manufacturers representing approx. 90 percent of the market were tested for compliance
- Screening tests of 30 PFCs on E-0 and E-10 in 2014
  - Represents cross-section of available PFCs in California
- Testing follows accepted protocols

Sealed Housing for Evaporative Determination (SHED)

Results of PFC Certification, In-Use, and Compliance Test Data Obtained by ARB

- Certification data with E-0 fuel submitted by third party show 100 percent compliance with ARB diurnal performance standard
- ARB in-use and compliance testing with E-0 fuel shows only 50 percent compliance with ARB diurnal performance standard

Comparison of In-Use and Certification PFC Diurnal Test Results with E-0 Certification Fuel May 2013 – May 2014



Note: Black columns represent certification data submitted to ARB
Other colors represent ARB test results for individual manufacturers

Summary of E-0 PFC Diurnal Testing

- Significant discrepancy between manufacturer reported and actual emissions
- Approximately 50 percent of models tested met the standard
- Passing models on average were 60 percent of the current standard
- Failing models on average were four times the standard

Next Steps

- Enforcement Division notified of noncompliant results
- Investigate results on manufacturer by manufacturer basis
- Manufacturers to identify and correct root causes of noncompliant results
- Potential legal action

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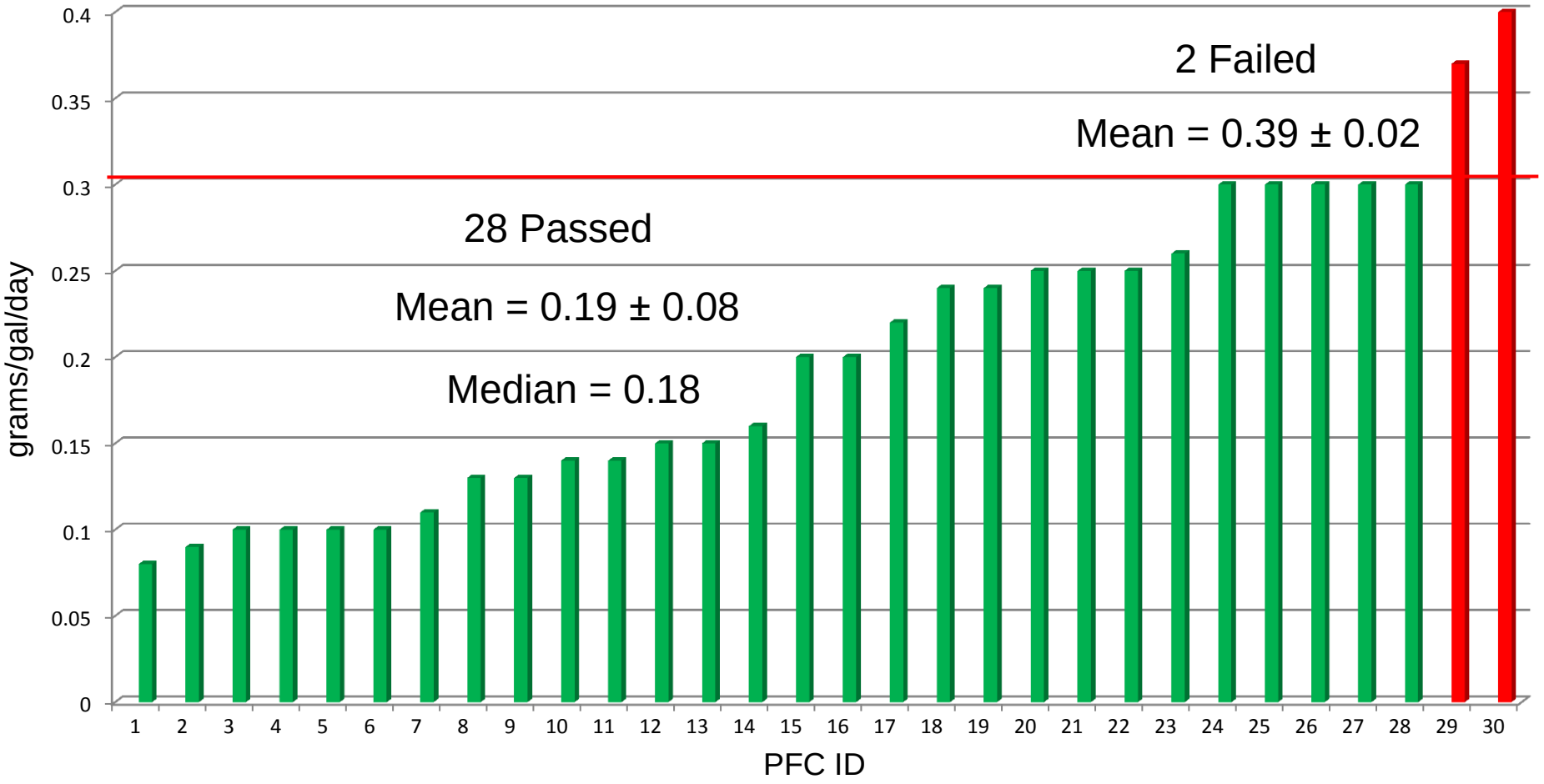
E-10 Fuel Testing

- Passing models with E-0 fuel (slide 10) were purchased off the shelf and tested with E-10 fuel (30 PFCs total)
- Over 90 percent of containers that passed the 0.3 gram/gallon/day standard with E-0 fuel also passed with E-10 fuel
- Indicates that compliance with E-10 standard is feasible for already compliant products

Proposed E-10 Requirements and other Revisions

PFC Screening Test Results
Diurnal Rates with E-10 Certification Fuel
June – October 2014



E-10 Certification Fuel Change

- Change the certification fuel from E-0 to E-10 gasoline
  - Update reference to “California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light Duty Trucks, and Medium-Duty Vehicles”
  - Certification fuel will be consistent with fuel currently dispensed in California
  - Allow U.S. EPA E-10 Certification Fuel (9 RVP) w/ ARB diurnal test

Potential Harmonization with U.S. EPA

- Reduce reporting burden on manufacturers
- Administrative changes
  - Adopt label requirements
  - Add U.S. EPA pressure cycling test, UV exposure test, and slosh test
  - Precondition at nominal capacity
- Changes currently under ARB evaluation
  - 140-day soak at 28 ± 5°C
  - 70-day elevated temperature soak at 43 ± 5°C as alternative to 140-day soak
  - Remove ARB elevated temperature soak using correlation coefficient

Certification Process Revisions

- Require submittal of all test data, whether passing or failing (CP-501)
  - Identify and correct problems
  - Perform testing with a new set of six containers if any failure occurs
- Require recordkeeping for at least five years (TP-501, TP-502)
- Require testing of the same set of six containers for TP-501 and TP-502 in series and without modifications (CP-501, TP-501, TP-502)

Certification Process Revisions (cont.)

- Increase balance sensitivity requirements for performing mass measurements (TP-502)
  - 0.1 gram sensitivity for mass > 6200 grams
  - 0.01 gram sensitivity for mass ≤ 6200 grams
- Require highest recorded diurnal mass loss (TP-502)

Clarification & Streamlining

- Update definitions (Regulation Order)
  - ASTM (American Society for Testing and Materials) name change
  - Revised ROG definition
- Eliminate “spill-proof” phrase (Regulation Order)
- Address outdated sections (Regulation Order)
- Clarify requirements of secondary opening and require a normally closed vent only (CP-501)
- Eliminate Consumer Acceptance Program (CP-501)

Clarification & Streamlining (cont.)

- Revise text to improve clarity (Regulation Order, CP-501, TP-501, TP-502)
- Specify the position of the spout for leak test to be “pointing down in a vertical axial position” (TP-501)
- Clarify implications of leak test failure (TP-501)
- Remove ambiguity as to when spout actuations are repeated by performing in the first and last 10 days of soak period (TP-502)
- Simplify diurnal emissions calculations (TP-502)

Technical Revisions

- Modify the pre-fill volume equation (TP-501)

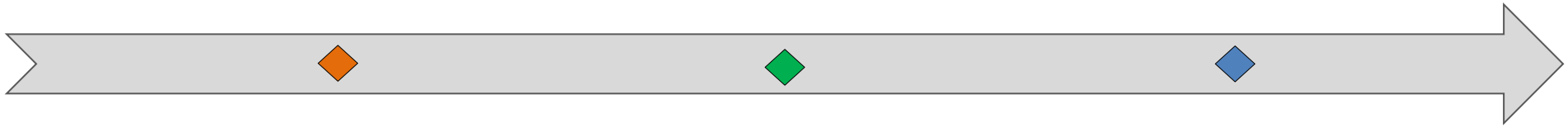
PFC Size	Pre-fill Volume
≤ 5 gallons	Volume of Test Fixture – (0.25 * Capacity of PFC)
> 5 gallons	0

- Fill trip blank (reference container) with sand, glass beads, or other inert material (TP-502)
- Revise data sheet to accommodate all collected data (TP-502)

Timing

May 2015:
Post draft regulatory language, Certification Procedure, and Test Procedures

Late December 2015:
ARB Board Hearing to consider E-10 fuel requirement, and revisions to clarify procedures and harmonize with U.S. EPA



Early November 2015:
Post staff report and proposed regulatory language

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Possible Future Actions

- Lower performance standard
- Update residential/commercial survey
- Update PFC emissions inventory
- Improve spout performance
- Reduce spillage emissions
- Develop new test fixture with geometry similar to fuel tank

ARB Staff Contact Information

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Questions?